IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of MARTIN DIETER LIESS ET AL

Atty. Docket NL 000611

Serial No.

Group Art Unit

Filed: CONCURRENTLY

Ex.

Title: METHOD OF MEASURING THE MOVEMENT OF AN INPUT DEVICE

Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Prior to calculation of the filing fee and examination, please amend the above-identified application as follows:

IN THE CLAIMS

Please amend the claims as follows:

5. (amended) A method as claimed in claim 1, characterized in that it is used to determine a click action by a single movement of the object and the input device relative to each other along an axis, which is substantially perpendicular to the object surface.

6. (amended) A method as claimed in claim 1, characterized in that it is used to determine both a scroll action and a click action by movement of the object and the input device relative to

each other in a first direction parallel to the object surface and in a second direction substantially perpendicular to the object surface.

7. (amended) A method as claimed in claim 1, characterized in that the impedance of the diode laser cavity is measured.

8. (amended) A method as claimed in claim 1, characterized in that the intensity of the laser radiation is measured.

13. (amended) An input device as claimed in claim 9, characterized in that it comprises at least two diode lasers and at least one detector for measuring a relative movement of the object and the device along a first and a second measuring axis, which axes are parallel to the illuminated surface of the object.

14. (amended) An input device as claimed in claim 9, characterized in that it comprises three diode lasers and at least one detector for measuring a relative movement of the object and the device along a first, a second and a third measuring axis, the first and second axes being parallel to the illuminated surface of the object and the third axis being perpendicular to this surface.

15. (amended) An input device as claimed in claim 9, for determining both a scroll action and a click action, characterized in that it comprises two diode lasers and at lest one detector for measuring relative movements of the object and the device along a first measuring axis parallel to the object surface and along a second measuring axis substantially perpendicular to the object surface.

16. (amended) An input device as claimed in claim 9, for determining both a scroll action and a click action, characterized in that it comprises two diode lasers and at least one detector for measuring relative movements of the object and the device along a first and a second measuring axis, which axes are at opposite angles with respect to a normal to the object surface.

17. (amended) An input device as claimed in claim 9, characterized in that the optical means comprises a lens arranged between said at least one laser and associated detector, on the one hand, and an action plane, on the other hand, the at least one laser being positioned eccentrically with respect to the lens.

20. (amended) An input device as claimed in claim 7, characterized in that each diode laser is a horizontal emitting laser and in that the device comprises, for each diode laser, a

reflecting member reflecting the beam from the associated diode laser to an action plane.

21. (amended) An input device as claimed in claim 9, characterized in that it is composed of a base plate on which the at least one diode laser and associated detector are mounted, a cap member fixed to the base plate and comprising a window and a lens accommodated in the cap member.

23. (amended) An input device as claimed in claim 21, characterized in that the base plate, the cap member and the lens are made of a plastic material.

24. (amended) An input device as claimed in claim 9, characterized in that each diode laser is coupled to the entrance side of a separate light guide, the exit side of which is positioned at the window of the device.

26. (amended) An input device as claimed in claim 24, characterized in that it comprises three diode lasers and three light guides, and in that the exit sides of the light guides are arranged in a circle at a mutually angular spacing of substantially 120^0.

27. (amended) A mouse for a desktop computer, comprising an input device as claimed in claim 9.

28. (amended) A keyboard for a desktop computer wherein an input device as claimed in claim 9 is integrated.

29. (amended) A laptop computer wherein an input device as claimed in claim 9 is integrated.

30. (amended) A display wherein an input device as claimed in claim 9 is integrated.

31. (amended) An ultrasound diagnostic apparatus wherein at least one input device as claimed in claim 9 is integrated.

32. (amended) A hand-held scanner apparatus wherein at least one input device as claimed in claim 9 is integrated.

33. (amended) A remote control unit wherein at least one input device as claimed in claim 9 is integrated.

REMARKS

The foregoing amendments to the claims were made solely to avoid filing the claims in the multiple dependent form so as to

avoid the additional filing fee.

The claims were not amended in order to address issues of patentability and Applicants respectfully reserve all rights they may have under the Doctrine of Equivalents. Applicants furthermore reserve their right to reintroduce subject matter deleted herein at a later time during the prosecution of this application or continuing applications.

Respectfully submitted,

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APPENDIX

5. (amended) A method as claimed in claim 1~~, 2, 3 or 4~~, characterized in that it is used to determine a click action by a single movement of the object and the input device relative to each other along an axis, which is substantially perpendicular to the object surface.

6. (amended) A method as claimed in claim 1~~, 2, 3, 4 or 5~~, characterized in that it is used to determine both a scroll action and a click action by movement of the object and the input device relative to each other in a first direction parallel to the object surface and in a second direction substantially perpendicular to the object surface.

7. (amended) A method as claimed in ~~any one of claims 1 6~~claim 1, characterized in that the impedance of the diode laser cavity is measured.

8. (amended) A method as claimed in ~~any one of claims 1 6~~claim 1, characterized in that the intensity of the laser radiation is measured.

13. (amended) An input device as claimed in claim 9~~, 10, 11 or 12~~, characterized in that it comprises at least two diode lasers and at least one detector for measuring a relative movement of the object and the device along a first and a second measuring axis, which axes are parallel to the illuminated surface of the object.

14. (amended) An input device as claimed in claim 9~~, 10, 11 or 12~~, characterized in that it comprises three diode lasers and at least one detector for measuring a relative movement of the object and the device along a first, a second and a third measuring axis, the first and second axes being parallel to the illuminated surface of the object and the third axis being perpendicular to this surface.

15. (amended) An input device as claimed in claim 9~~, 10, 11 or 12~~, for determining both a scroll action and a click action, characterized in that it comprises two diode lasers and at lest one detector for measuring relative movements of the object and the device along a first measuring axis parallel to the object surface and along a second measuring axis substantially perpendicular to the object surface.

16. (amended) An input device as claimed in claim 9~~, 10, 11 or 12~~, for determining both a scroll action and a click action,

characterized in that it comprises two diode lasers and at least one detector for measuring relative movements of the object and the device along a first and a second measuring axis, which axes are at opposite angles with respect to a normal to the object surface.

17. (amended) An input device as claimed in ~~any one of claims 9-16~~claim 9, characterized in that the optical means comprises a lens arranged between said at least one laser and associated detector, on the one hand, and an action plane, on the other hand, the at least one laser being positioned eccentrically with respect to the lens.

20. (amended) An input device as claimed in ~~any one of claims 7 to 19~~claim 7, characterized in that each diode laser is a horizontal emitting laser and in that the device comprises, for each diode laser, a reflecting member reflecting the beam from the associated diode laser to an action plane.

21. (amended) An input device as claimed in ~~any one of claims 9 to 20~~claim 9, characterized in that it is composed of a base plate on which the at least one diode laser and associated detector are mounted, a cap member fixed to the base plate and comprising a window and a lens accommodated in the cap member.

23. (amended) An input device as claimed in claim 21 ~~or 22~~, characterized in that the base plate, the cap member and the lens are made of a plastic material.

24. (amended) An input device as claimed in ~~any one of claims 9-14~~claim 9, characterized in that each diode laser is coupled to the entrance side of a separate light guide, the exit side of which is positioned at the window of the device.

26. (amended) An input device as claimed in ~~claim 24 or 25~~claim 24, characterized in that it comprises three diode lasers and three light guides, and in that the exit sides of the light guides are arranged in a circle at a mutually angular spacing of substantially 120^0.

27. (amended) A mouse for a desktop computer, comprising an input device as claimed in ~~any one of claims 9-26~~claim 9.

28. (amended) A keyboard for a desktop computer wherein an input device as claimed in ~~any one of claims 9-26~~claim 9 is integrated.

29. (amended) A laptop computer wherein an input device as claimed in ~~any one of claims 9-26~~claim 9 is integrated.

30. (amended) A display wherein an input device as claimed in ~~any one of claims 9-26~~claim 9 is integrated.

31. (amended) An ultrasound diagnostic apparatus wherein at least one input device as claimed in ~~any one of claims 9-14 and 17-26~~claim 9 is integrated.

32. (amended) A hand-held scanner apparatus wherein at least one input device as claimed in ~~any one of claims 9-14 and 17-26~~ claim 9 is integrated.

33. (amended) A remote control unit wherein at least one input device as claimed in ~~any one of claims 9-26~~claim 9 is integrated.